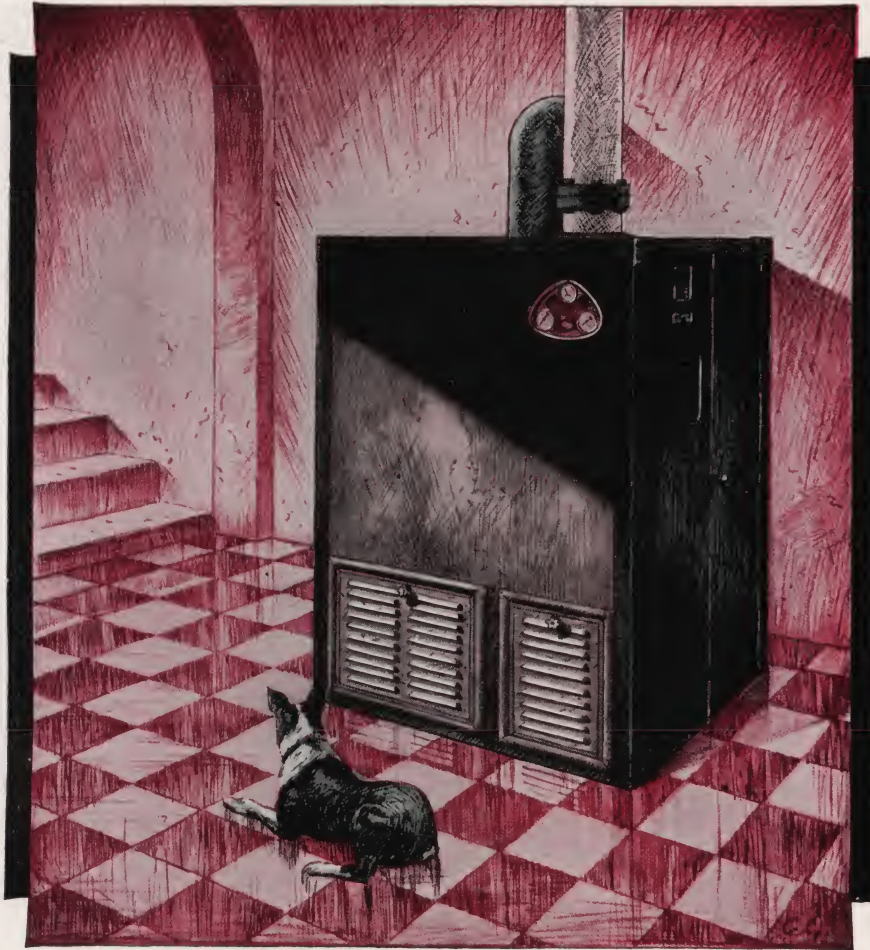


THE PUP IS THE FURNACE MAN

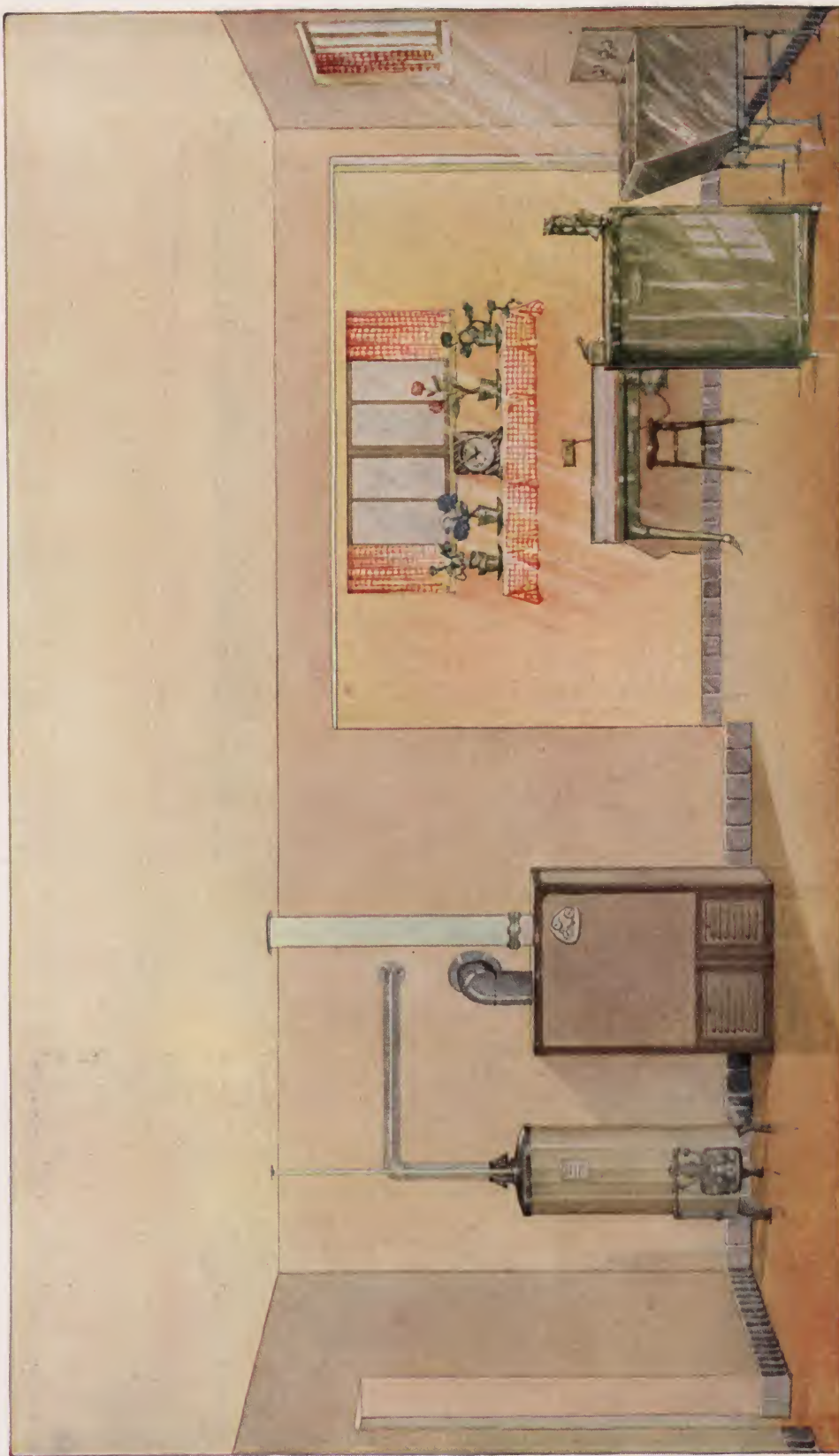


Handbook on Heating Buildings
with
BRYANT GAS BOILERS

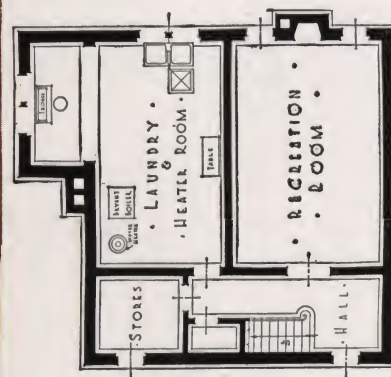


This Handbook on Heating Buildings contains a detailed description of all models of Bryant Gas Boilers and Controls as well as technical information of value to the Architect and Heating Engineer





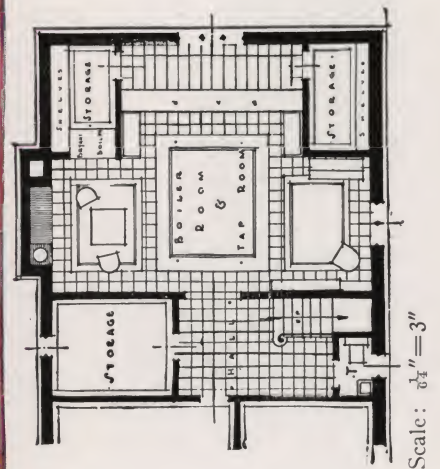
The cost of this combination laundry and heater room is that of a normal basement for a house with approximately 750 square feet of water radiation. The floor plan suggestion is that of an inexpensive six or seven-room house. With the Model 45 Bryant Boiler, this practical, clean home laundry room is possible. You will note that the floor plan includes a recreation room, which can be decorated and equipped for any one of the various uses shown on Page 2.



THE MASCULINE PARADISE

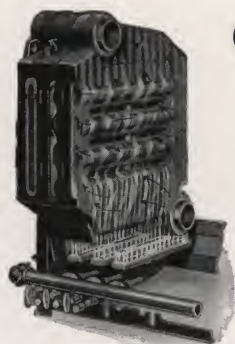


More elaborate possibilities of basement space are suggested in this masculine paradise with its early American ingle, lounge and taproom, making a haven which would probably prove equally alluring to the fair sex. To add such a room on the ground floor would materially increase the cubical content of a residence. Here, in the basement, it occupies space which would otherwise be of little use. ¶ The inspiration of this room is the "Hall of Capen House" in the American wing of the Metropolitan Museum. Beams and posts are adzed, walls and ceiling of antique plaster and floor of stone. ¶ The bar seat is movable to give access to the boiler controls. The floor plan and character of the heating plant indicate a house with approximately 900 feet of steam radiation.

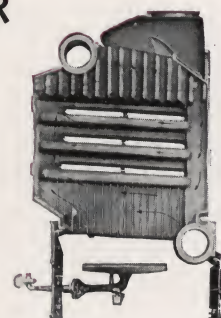




CUTAWAY VIEW BRYANT TUBULAR BOILER



BATTERY OF SECTIONS



BRYANT TUBULAR SECTION

1. **CAST IRON SECTIONS** of the water tube type present a large area of heat absorbing surface.
2. **PITCH OF WATER TUBES** promotes a definite, rapid circulation throughout the height of a Bryant Section preventing air bubbles from insulating the walls and assuring maximum heat transference.
3. **LARGE LOWER TUBES RIBBED** to present a high percentage of heating surface within the zone of the hottest gases.
4. **STAGGERED GAS TRAVEL** contributes to maximum efficiency. The hot gases from each burner are so baffled back and forth, constantly rubbing heating surfaces, that only sufficient warmth is left in the gases to promote the necessary draft.
5. **LARGE STEAM LIBERATING AREA AND AMPLE STEAM CHAMBER** with baffle insures a steady water line and rapid steaming.
6. **INTEGRAL DRAFT HOOD** saves much headroom. (See lower right illustration.)
7. **GAUGE PANEL** centers at a single point the few gauges that ever call for passing inspection.
8. **MANIFOLD AND CONTROLS** enclosed, symbolic of their attentionless reliability.
9. **ENDURING CRYSTALLINE FINISH** adds to the handsome appearance of Bryant Boilers.

C O M P L E T E B R Y A N T L I N E

BRYANT GAS BOILERS cover the entire range of building-heating requirements. No building is so large or so small that the advantages of Bryant Automatic Gas Heating may not be enjoyed. To accomplish this in the



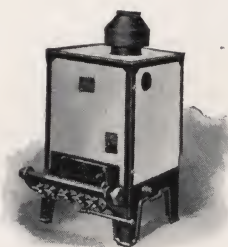
most economical and efficient manner, three lines of boilers have been developed: Model 2 Boilers; Models 43 and 45 Boilers; and Model 63 Boilers. The ratings of the boilers in these three lines will be found on page 5.

BRYANT MODEL 2 BOILERS

These boilers are particularly well suited for the small home, or for the large home completely insulated. They are made in five sizes and are trimmed for either steam or hot water.

Model 2 Boilers are made up of batteries of cast-iron tubular sections pitched to facilitate rapid circulation of the water.

Staggered gas travel and large area of heating surfaces are also incorporated in this boiler, insuring an economy of operation comparable to the larger sizes of Bryants.



A MODEL 2 BOILER

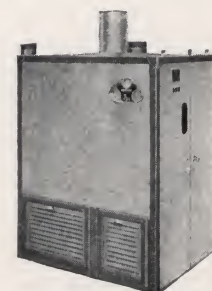
BRYANT MODELS 43 AND 45 BOILERS

These models cover the heating requirements for the average and large home. They are made up of batteries of cast-iron tubular sections, in eleven sizes and trimmed for either steam or hot water.

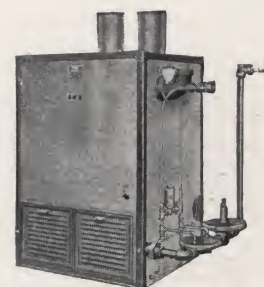
These boilers incorporate all of the many features for which Bryant Boilers have become renowned such as, Bryant Tubular construction, rapid circulation of the water, staggered gas travel, large lower tubes, large steam liberating area, integral down-draft divertor, and an enduring crystalline finished metal jacketed cover.

On Model 45 Boilers all controls are enclosed and out of sight, symbolic of their attentionless reliability. This control cabinet also mounts the handsome instrument panel which centers at a single point the few gauges that ever call for passing inspection. These features make the Model 45 Bryant the most practical boiler for use in the modern "dressed-up basement."

Model 43 Boilers have the same ratings as corresponding sizes of Model 45 Boilers but do not have the control cabinet and gauge panel.



A MODEL 45 BOILER



A MODEL 43 BOILER

BRYANT MODEL 63 BOILERS

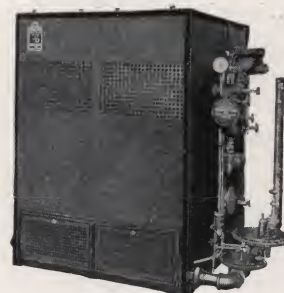
They are particularly capable of handling large scale heating requirements and were designed with the peculiar requirements of large unit heating constantly in mind. They are made up of cast-iron tubular sections in thirteen sizes and are trimmed for either steam or hot water.

The manifold and angle cocks are completely enclosed by the metal jacketed cover which is finished in a handsome enduring crystalline enamel.

The compact design of Model 63 Boilers gives economy of floor space while the improved style of built-in draft hood conserves much headroom as well as adding to the appearance of the heating plant.

A 3-in. return tapping a few inches below the water line allows perfect equalization in steam heating systems.

The heating surfaces are easily cleaned from either the front or rear of the boiler.



A MODEL 63 BOILER

Applications of Bryant Tubular Gas Boilers

Bryant Boilers can be used with any type of steam, vapor or hot water heating system, or for the generation of low pressure steam for industrial work. They are classified as explained below according to the type of service to which they are adapted.

Type "S" Boilers

Steam boilers, automatically controlled to maintain any desired steam pressure from a few ounces up to 15 lb. per sq. in. They can also be operated under room temperature control either by the magnetic valve which is standard equipment on Type "S" Boilers, or by the motor of a room temperature control system. Type "S" Boilers are for use with steam, vapor or vacuum heating systems, or for generating steam for cooking or other industrial purposes.

AGA rating, sq. ft.	Boiler No.	Approximate shipping weight, lb.	AGA rating, sq. ft.	Boiler No.	Approximate shipping weight, lb.	AGA rating, sq. ft.	Boiler No.	Approximate shipping weight, lb.
220	3-S-2	495	1300	7-S-45	2070	4440	12-S-63	5760
290	4-S-2	565	1480	8-S-45	2315	5180	14-S-63	6335
370	5-S-2	655	1670	9-S-45	2545	5920	16-S-63	7330
440	6-S-2	720	1850	10-S-45	2800	6660	18-S-63	8120
510	7-S-2	795	2040	11-S-45	2980	7400	20-S-63	8910
			2220	12-S-45	3230	8140	22-S-63	9700
			2410	13-S-45	3480	8880	24-S-63	10490
560	3-S-45	1235				9620	26-S-63	11280
740	4-S-45	1445				10360	28-S-63	12070
930	5-S-45	1660	2220	6-S-63	3405	11100	30-S-63	12860
1110	6-S-45	1860	2960	8-S-63	4150			
			3700	10-S-63	4965			

Model 43 boilers have the same ratings as Model 45 boilers; weight—140 lb. less.

Trimmings Furnished

No. 1100 Boiler Control (combined steam pressure governor and low water cut-off)
Thermostatic Pilots
Solenoid Valve
Diaphragm Snap Valve
Escapement Burner

Pop Safety Valve (set 15 lb.)
Gas Pressure Regulator
Labeled Shut-off Valve
Compound Pressure and Vacuum Gauge and Siphon
Water Level Gauge

Gas Pressure Gauge and Gauge Panel (Model 45 boilers only)
Metal Jacketed Cover
Draft Hood (built into Models 43, 45 and 63 boilers)
Drain Cocks

Type "W" Boilers

Boilers equipped for use with hot water heating systems where dual control of the heating system is desired; that is, automatic room temperature and water temperature control. The room temperature control element on this boiler is a magnetic valve for connection to the room temperature thermostat (motor is not required).

AGA rating, sq. ft.	Boiler No.	Approximate shipping weight, lb.	AGA rating, sq. ft.	Boiler No.	Approximate shipping weight, lb.	AGA rating, sq. ft.	Boiler No.	Approximate shipping weight, lb.
350	3-W-2	455	2070	7-W-45	2030	7100	12-W-63	5730
470	4-W-2	530	2370	8-W-45	2275	8290	14-W-63	6305
590	5-W-2	610	2660	9-W-45	2505	9470	16-W-63	7300
700	6-W-2	685	2960	10-W-45	2760	10660	18-W-63	8090
820	7-W-2	760	3260	11-W-45	2940	11840	20-W-63	8880
			3550	12-W-45	3190	13020	22-W-63	9670
			3850	13-W-45	3440	14210	24-W-63	10460
890	3-W-45	1195				15390	26-W-63	11250
1190	4-W-45	1405				16580	28-W-63	12040
1480	5-W-45	1620	3550	6-W-63	3375	17760	30-W-63	12830
1780	6-W-45	1820	4740	8-W-63	4120			
			5920	10-W-63	4935			

Model 43 boilers have the same ratings as Model 45 boilers; weight—140 lb. less.

Trimmings Furnished

Robertshaw Reverse Action Thermostat
Thermostatic Pilots
Solenoid Valve*
Diaphragm Snap Valve
Escapement Burner

Gas Pressure Regulator
Labeled Shut-off Valve
Altitude Gauge
Thermometer
Metal Jacketed Cover

Gas Pressure Gauge and Gauge Panel (Model 45 boilers only)
Draft Hood (built into Models 43, 45 and 63 boilers)
Drain Cocks

*A lever-actuated gas valve (Snap Action Valve) which can be operated by the motor of a room temperature control system will be supplied on special request, in place of the Solenoid Valve.

Type "C" Boilers

Boilers equipped for use with hot water heating systems. They are provided with a Bryant Quick Action Valve which may be operated by the motor of a room temperature control system.

Type "A" Boilers

Water Boilers, completely automatic, equipped for use on direct hot water storage systems.

Type "SA" Boilers

Steam Boilers, completely automatic, equipped for use on indirect hot water storage systems.

To Select the Appropriate Boiler

AGA Rating

Gas boilers are most commonly selected from their AGA rating, which is the boiler output measured in terms of square feet of direct cast-iron radiation. The average heat emission of direct cast-iron radiation

is 240 B.t.u. per hour per sq. ft. for steam, and 150 B.t.u. per hour for water. The AGA rating is therefore secured by dividing the available heat units per hour by 240 for steam boilers and by 150 for water boilers.

Horsepower

The available heat expressed in B.t.u. per hour, the boiler horsepower (1 BHP = 33,500 B.t.u. per hour),

and the heating surfaces are also given at the bottom of this page.

Starting and Piping Allowance

To determine the size of the boiler required for direct radiation, add to the installed radiation, expressed as equivalent direct radiation, an allowance for piping and for starting up a cold system. The combined starting and piping allowance runs from 67 per cent on small installations down to 33 per cent on installations of 3500

sq. ft. and over. The determination of the proper factor rests on the judgment of the Engineer or Contractor. After adding the proper percentage to the installed radiation, the boiler having the nearest AGA rating is selected.

Indirect Radiation

Indirect radiation (such as a central fan job or unit heater installation), should be converted to equivalent direct radiation by using the manufacturer's rating tables. No rule for estimating piping load can be laid down. In an installation composed entirely of a central fan system, with all heating surface concentrated in one jacket near the boiler, the piping load will be quite small.

The proper allowance must be determined by the Engineer or Contractor. The starting load will vary from about 25 per cent of the total condensing load, in the case of a unit heater installation using all re-circulated air, down to practically nothing in a central fan blast installation where the heaters are proportioned for all outside air.

Ratings, Heating Surfaces, Water Capacity

Boiler No.	Available B.t.u. per hour (output)	BHP	AGA rating sq. ft.		Sq. ft. of heating surface	Gas consumption cu. ft. per hour		Water capacity to water line, gal.	Size flow and return, tappings, in.
			Steam	Water		1000 B.t.u. gas	500 B.t.u. gas		

Model 2 Boilers

3	52,800	1.60	220	350	16.5	66	132	2.1	2
4	70,400	2.10	290	470	22.0	88	176	2.8	2
5	88,000	2.60	370	590	27.5	110	220	3.5	2
6	105,600	3.10	440	700	33.0	132	264	4.2	2
7	123,200	3.60	510	820	38.5	154	308	4.9	2

Models 43 and 45 Boilers

3	133,200	4.00	560	890	41.7	167	334	17.8	4
4	177,600	5.30	740	1190	55.1	222	444	22.2	4
5	222,000	6.60	930	1480	68.5	278	556	26.2	4
6	266,400	8.00	1110	1780	81.9	333	666	31.0	4
7	310,800	9.30	1300	2070	95.3	389	778	35.4	4
8	355,200	10.60	1480	2370	108.7	444	888	39.8	4
9	399,600	11.90	1670	2660	122.1	500	1000	44.2	4
10	444,000	13.20	1850	2960	135.5	555	1110	48.6	4
11	488,400	14.60	2040	3260	148.9	611	1222	53.0	4
12	532,800	15.90	2220	3550	162.3	666	1332	57.4	4
13	577,200	17.20	2410	3850	175.7	722	1444	61.8	4

Model 63 Boilers

6	532,800	15.90	2220	3550	149.0	666	1332	77.7	6
8	710,400	21.20	2960	4740	197.0	888	1776	99.9	6
10	888,000	26.50	3700	5920	246.0	1110	2220	122.1	6
12	1,065,600	31.80	4440	7100	294.0	1332	2664	144.3	6
14	1,243,200	37.10	5180	8290	343.0	1554	3108	166.5	6
16	1,420,800	42.40	5920	9470	391.0	1776	3552	188.7	6
18	1,598,400	47.70	6660	10660	440.0	1998	3996	210.9	6
20	1,776,000	53.00	7400	11840	488.0	2220	4440	233.1	6
22	1,953,600	58.30	8140	13020	537.0	2442	4884	255.3	6
24	2,131,200	63.60	8880	14210	585.0	2664	5328	277.5	6
26	2,308,800	68.90	9620	15390	634.0	2886	5772	299.7	6
28	2,486,400	74.20	10360	16580	682.0	3108	6216	321.9	6
30	2,664,000	79.50	11100	17760	731.0	3330	6660	344.1	6

Specifications for Bryant Heating Equipment

Steam or Vapor

Boiler

Contractor shall furnish complete, and set up in basement in accordance with instructions furnished by the manufacturer, one No.....Bryant Tubular Steam Boiler, AGA rating.....square feet, as manufactured by THE BRYANT HEATER & MFG. COMPANY, Cleveland, Ohio. Boiler to be complete with gas pressure regulator, draft hood, No. 1100 boiler control, diaphragm snap valve, solenoid valve, labeled gas shut-off valve, compound retard gauge and siphon, pop safety valve, thermostatic pilot control, and drain cocks.

Water Connection

Furnish and properly connect feed cock of proper size for boiler.

Bryant Gas Pressure Regulator

The vent opening shall be connected to the outside of the building foundation with galvanized pipe; union

placed at regulator end, and elbow faced down on outdoor end of vent line.

Flue Pipe

Connect flue outlets on boiler with a.....inch header, made from.....gauge (specify a corrosion resisting metal) and connect same to chimney with (size in column 7, page 8).....inch.....gauge (specify a corrosion resisting metal) pipe.

Gas Supply Line

Furnish (size larger than column 12, page 8).....inch gas line direct from meter to labeled gas shut-off valve on boiler.

Metal Jacketed Cover

Contractor shall furnish and install metal jacketed covering designed for boiler by the manufacturer.

Hot Water (Dual Control)

Boiler

Contractor shall furnish complete and set up in basement, in accordance with instructions furnished by the manufacturer, one No.....Bryant Tubular Hot Water Boiler, AGA rating.....square feet, as manufactured by THE BRYANT HEATER & MFG. COMPANY, Cleveland, Ohio. Boiler to be complete with gas pressure regulator, draft hood, Robertshaw thermostatic control with solenoid valve and snap valve (or Robertshaw thermostatic control with snap action gas valve), labeled gas shut-off valve, altitude gauge, thermometer, thermostatic pilot control, and drain cocks.

Water Connection

Furnish and properly connect feed cock of proper size for boiler.

Bryant Gas Pressure Regulator

The vent opening shall be connected to the outside

of the building foundation with galvanized pipe; union placed at regulator end, and elbow faced down on outdoor end of vent line.

Flue Pipe

Connect flue outlets on boiler with a.....inch header, made from.....gauge (specify a corrosion resisting metal) and connect same to chimney with (size in column 7, page 8).....inch.....gauge (specify a corrosion resisting metal) pipe.

Gas Supply Line

Furnish (size larger than column 12, page 8).....inch gas line direct from meter to labeled gas shut-off valve on boiler.

Metal Jacketed Cover

Contractor shall furnish and install metal jacketed covering designed for boiler by the manufacturer.

Hot Water (Type "C" Control)

Use same form as for "Hot Water (Dual Control)," except change first paragraph to read:

Boiler

Contractor shall furnish complete and set up in basement, in accordance with instructions furnished by the manufacturer, one No.....Bryant Tubular Hot

Water Boiler, AGA rating.....square feet, as manufactured by THE BRYANT HEATER & MFG. COMPANY, Cleveland, Ohio. Boiler to be complete with gas pressure regulator, draft hood, quick action valve, labeled gas shut-off valve, altitude gauge, thermometer, and drain cocks.

Bryant Tubular Gas Boilers

General Dimensions (For Natural or Manufactured Gas)

Boiler No.	Number of flows and returns	Size of flows and returns, in.	Width between flow tappings, in.	Number of boiler flue openings	Size of boiler flue openings, in.	Size of flue to chimney, in.	Height boiler only, in.	Gas pressure regulator, in.	Pop valve, in.	Gas manifold, in.	Labeled shut-off valve, in.	Number of Pilot lights	Dia-phragm snap valve, in.	Type "C" only, quick action gas valve, in.	Capacity of meter for 500 B.t.u. m'f'd gas, cu. ft.	Capacity of meter for 1000 B.t.u. natural gas, cu. ft.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)

Model 2 Boilers

3	2	2	9 $\frac{5}{8}$	1	5	5	31 $\frac{1}{2}$	1	1	1 $\frac{1}{4}$	1	1	1	1	132	66
4	2	2	12 $\frac{1}{2}$	1	5	5	31 $\frac{1}{2}$	1	1	1 $\frac{1}{4}$	1	1	1	1	176	88
5	2	2	15 $\frac{1}{2}$	1	5	5	31 $\frac{1}{2}$	1	1	1 $\frac{1}{4}$	1	1	1	1	220	110
6	2	2	18 $\frac{1}{2}$	1	5	5	31 $\frac{1}{2}$	1	1	1 $\frac{1}{4}$	1	1	1	1	264	132
7	2	2	22 $\frac{1}{2}$	1	6	6	31 $\frac{1}{2}$	1	1	1 $\frac{1}{4}$	1	1	1	1		

Models 43 and 45 Boilers

3	2	4	14 $\frac{7}{8}$	1	7	7	48	1	1	1 $\frac{1}{4}$	1	1	1	1	334	167
4	2	4	18 $\frac{1}{2}$	1	7	7	48	1	1	1 $\frac{1}{4}$	1	1	1	1	444	222
5	2	4	22 $\frac{1}{8}$	1	8	8	48	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	2	1 $\frac{1}{4}$	1 $\frac{1}{4}$	556	278
6	2	4	25 $\frac{3}{4}$	1	8	8	48	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	2	1 $\frac{1}{4}$	1 $\frac{1}{4}$	666	333
7	2	4	29 $\frac{3}{8}$	2	7	9	48	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	3	1 $\frac{1}{4}$	1 $\frac{1}{4}$	778	389
8	2	4	33	2	7	9	48	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	888	444
9	2	4	36 $\frac{5}{8}$	2	8	10	48	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1000	500
10	2	4	40 $\frac{1}{4}$	2	8	10	48	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1100	555
11	2	4	43 $\frac{7}{8}$	2	8	10	48	2	2	2	2	4	2	2	1222	611
12	2	4	47 $\frac{1}{2}$	2	8	11	48	2	2	2	2	4	2	2	1332	666
13	2	4	51 $\frac{1}{8}$	3	8	12	48	2	2	2	2	5	2	2	1444	722

Model 63 Boilers

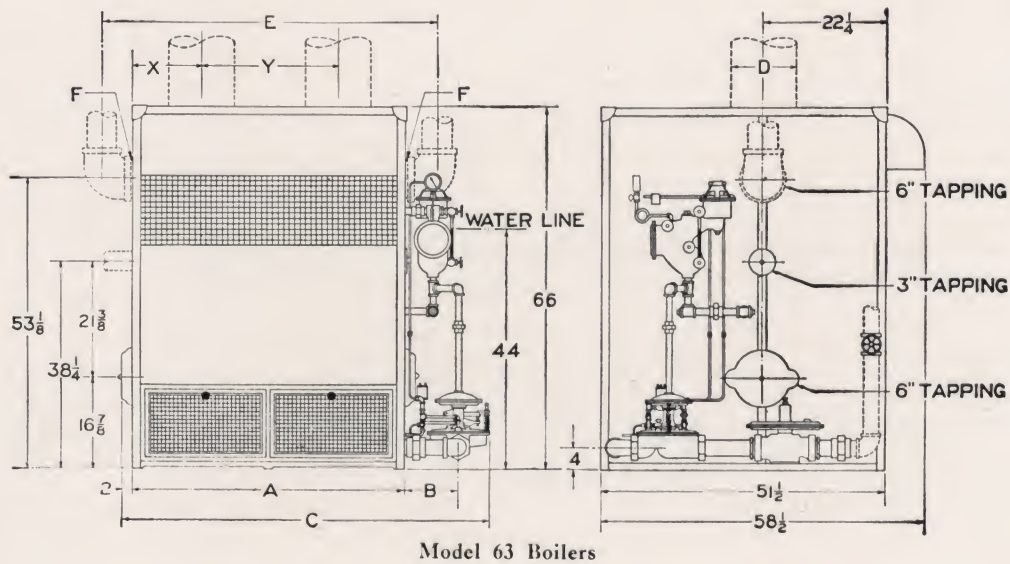
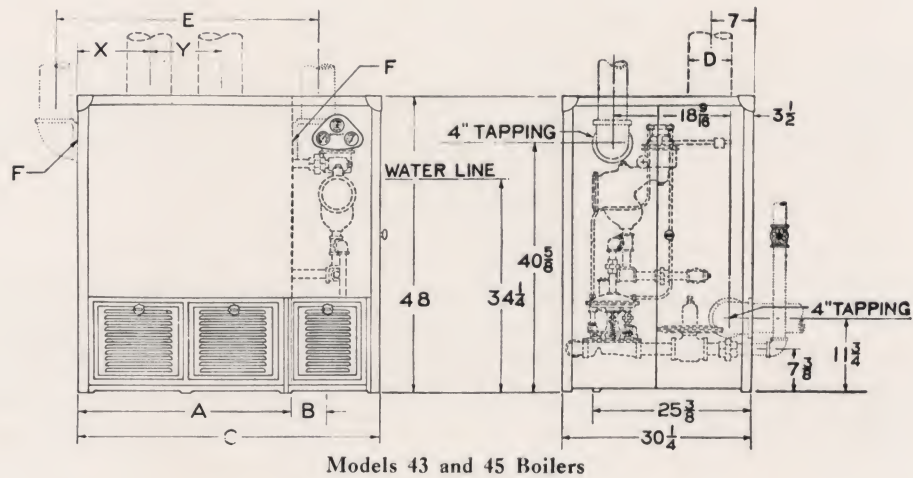
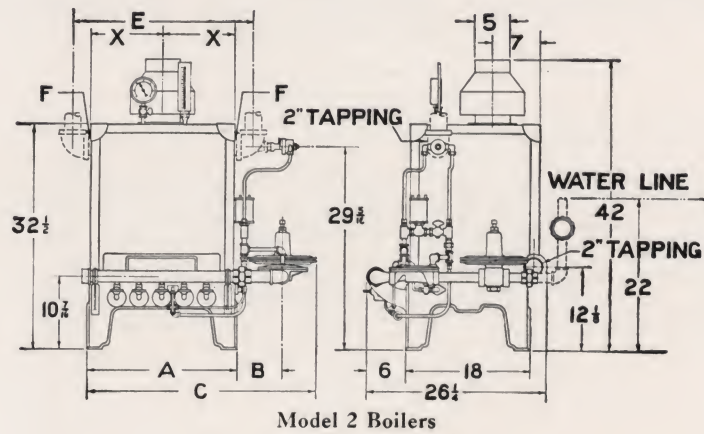
6	2	6	26 $\frac{1}{4}$	1	12	12	66	2	2	2	2	2	2	2	1332	666
8	2	6	33 $\frac{1}{2}$	1	14	14	66	2	2	2	2	2	2	2	1776	888
10	2	6	40 $\frac{3}{4}$	2	12	16	66	2	2	2	2	3	2	2	2220	1110
12	2	6	48	2	12	16	66	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	4	2 $\frac{1}{2}$		2664	1332
14	2	6	55 $\frac{1}{4}$	2	14	18	66	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	4	2 $\frac{1}{2}$		3108	1554
16	2	6	62 $\frac{1}{2}$	2	14	20	66	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	5	2 $\frac{1}{2}$		3552	1776
18	2	6	69 $\frac{3}{4}$	3	12	20	66	2 $\frac{1}{2}$	3	2 $\frac{1}{2}$	2 $\frac{1}{2}$	6	2 $\frac{1}{2}$		3996	1998
20	2	6	77	3	14	20	66	2 $\frac{1}{2}$	3	2 $\frac{1}{2}$	2 $\frac{1}{2}$	6	2 $\frac{1}{2}$		4440	2220
22	2	6	84 $\frac{1}{4}$	3	14	20	66	3	3	3	3	7	3		4884	2442
24	2	6	91 $\frac{1}{2}$	3	14	22	66	3	3	3	3	7	3		5328	2664
26	2	6	98 $\frac{3}{4}$	4	14	24	66	3	3 $\frac{1}{2}$	3	3	8	3		5772	2886
28	2	6	106	4	14	24	66	3	3 $\frac{1}{2}$	3	3	9	3		6216	3108
30	2	6	113 $\frac{1}{4}$	4	14	26	66	3	3 $\frac{1}{2}$	3	3	9	3		6660	3330

Note: 6-in. boilers have two additional return tappings for 3-in. pipe, located 6 in. below the water line.

Recommended Minimum Chimney Sizes (Outside Dimensions of Standard Rectangular Tile)

Height, ft.	Gas consumption in thousands of B.t.u. per hour									
	100	200	300	400	500	750	1000	1250	1500	2000
20	7 $\frac{1}{2}$ x7 $\frac{1}{2}$	7 $\frac{1}{2}$ x7 $\frac{1}{2}$	8 $\frac{1}{2}$ x8 $\frac{1}{2}$	8 $\frac{1}{2}$ x13	8 $\frac{1}{2}$ x13	13x13	13x13	13x18	13x18	18x18
40	7 $\frac{1}{2}$ x7 $\frac{1}{2}$	7 $\frac{1}{2}$ x7 $\frac{1}{2}$	8 $\frac{1}{2}$ x8 $\frac{1}{2}$	8 $\frac{1}{2}$ x8 $\frac{1}{2}$	8 $\frac{1}{2}$ x13	13x13	13x13	13x18	13x18	18x18
60	7 $\frac{1}{2}$ x7 $\frac{1}{2}$	7 $\frac{1}{2}$ x7 $\frac{1}{2}$	7 $\frac{1}{2}$ x8 $\frac{1}{2}$	8 $\frac{1}{2}$ x8 $\frac{1}{2}$	8 $\frac{1}{2}$ x13	13x13	13x13	13x18	13x18	18x18
80	7 $\frac{1}{2}$ x7 $\frac{1}{2}$	7 $\frac{1}{2}$ x7 $\frac{1}{2}$	7 $\frac{1}{2}$ x8 $\frac{1}{2}$	8 $\frac{1}{2}$ x8 $\frac{1}{2}$	8 $\frac{1}{2}$ x13	8 $\frac{1}{2}$ x13	13x13	13x13	13x18	13x18
100	7 $\frac{1}{2}$ x7 $\frac{1}{2}$	7 $\frac{1}{2}$ x7 $\frac{1}{2}$	7 $\frac{1}{2}$ x8 $\frac{1}{2}$	8 $\frac{1}{2}$ x8 $\frac{1}{2}$	8 $\frac{1}{2}$ x13	8 $\frac{1}{2}$ x13	13x13	13x13	13x18	13x18

Dimensional Drawings



Principal Dimensions of Bryant Boilers

(Dimensions in Inches)

Boiler No.	A	B	C	D	E	F Flow nipple	X	Y	Steam header proportions		Water header proportions flows and returns
									Flows	Header drip	

Model 2 Boilers

3	15 $\frac{5}{16}$	5 $\frac{5}{8}$	25 $\frac{11}{16}$	1-5	19 $\frac{5}{16}$	2x4	7 $\frac{19}{32}$	....	2	1	2
4	18 $\frac{3}{8}$	5 $\frac{5}{8}$	28 $\frac{7}{8}$	1-5	22 $\frac{1}{2}$	2x4	9 $\frac{5}{16}$	....	2	1	2
5	21 $\frac{5}{16}$	5 $\frac{5}{8}$	32 $\frac{1}{16}$	1-5	25 $\frac{11}{16}$	2x4	10 $\frac{23}{32}$	....	2	1	2
6	24 $\frac{3}{4}$	5 $\frac{5}{8}$	35 $\frac{1}{4}$	1-5	28 $\frac{7}{8}$	2x4	12 $\frac{3}{8}$	....	2	1	2
7	27 $\frac{15}{16}$	5 $\frac{5}{8}$	38 $\frac{7}{16}$	1-6	32 $\frac{1}{16}$	2x4	13 $\frac{31}{32}$	....	2	1	2

Models 43 and 45 Boilers

3	16 $\frac{1}{4}$	7 $\frac{1}{4}$	30 $\frac{3}{8}$	1-7	23 $\frac{3}{4}$	4 close	8 $\frac{1}{8}$	....	3	2	2 $\frac{1}{2}$
4	19 $\frac{3}{8}$	7 $\frac{1}{4}$	34	1-7	27 $\frac{3}{8}$	4 close	9 $\frac{15}{16}$	....	3	2	2 $\frac{1}{2}$
5	23 $\frac{1}{2}$	7 $\frac{1}{4}$	37 $\frac{5}{8}$	1-8	31	4 close	11 $\frac{3}{4}$	....	3	2	3
6	27 $\frac{1}{8}$	7 $\frac{1}{4}$	41 $\frac{1}{4}$	1-8	34 $\frac{5}{8}$	4 close	13 $\frac{9}{16}$	....	3	2	3
7	30 $\frac{3}{4}$	7 $\frac{1}{4}$	44 $\frac{3}{8}$	2-7	38 $\frac{1}{4}$	4 close	9 $\frac{5}{8}$	11 $\frac{1}{2}$	3	2	3
8	34 $\frac{3}{8}$	8 $\frac{1}{4}$	48 $\frac{1}{2}$	2-7	41 $\frac{1}{8}$	4 close	11 $\frac{7}{16}$	11 $\frac{1}{2}$	3	2	3
9	38	8 $\frac{1}{4}$	52 $\frac{1}{8}$	2-8	45 $\frac{1}{2}$	4 close	11 $\frac{3}{4}$	14 $\frac{1}{2}$	4	2	4
10	41 $\frac{5}{8}$	8 $\frac{1}{4}$	55 $\frac{3}{4}$	2-8	49 $\frac{1}{8}$	4 close	11 $\frac{3}{4}$	18 $\frac{1}{2}$	4	2	4
11	45 $\frac{1}{4}$	7 $\frac{1}{8}$	59 $\frac{3}{8}$	2-8	52 $\frac{3}{4}$	4 close	11 $\frac{3}{4}$	21 $\frac{3}{4}$	4	2	4
12	48 $\frac{3}{8}$	7 $\frac{1}{8}$	63	2-8	56 $\frac{3}{8}$	4 close	11 $\frac{3}{4}$	25 $\frac{3}{8}$	4	2	4
13	52 $\frac{1}{2}$	7 $\frac{1}{8}$	66 $\frac{9}{8}$	3-8	60	4 close	11 $\frac{3}{4}$	14 $\frac{1}{2}$	4	2	4

Model 63 Boilers

6	27 $\frac{3}{4}$	11	46 $\frac{1}{4}$	1-12	38 $\frac{1}{2}$	6 close	13 $\frac{7}{8}$	....	4	1 $\frac{1}{2}$	5
8	35	11	53 $\frac{3}{4}$	1-14	45 $\frac{3}{4}$	6 close	17 $\frac{1}{2}$	....	4	1 $\frac{1}{2}$	5
10	42 $\frac{1}{4}$	11	60 $\frac{5}{8}$	2-12	53	6 close	10 $\frac{5}{8}$	21	5	1 $\frac{1}{2}$	5
12	49 $\frac{1}{4}$	10 $\frac{3}{8}$	68 $\frac{1}{4}$	2-12	60 $\frac{1}{4}$	6 close	12 $\frac{7}{8}$	24 $\frac{3}{8}$	5	2	6
14	56 $\frac{3}{4}$	10 $\frac{3}{8}$	76 $\frac{1}{4}$	2-14	67 $\frac{1}{2}$	6 close	14 $\frac{1}{4}$	28 $\frac{1}{4}$	5	2	6
16	64	10 $\frac{3}{8}$	83 $\frac{3}{8}$	2-14	74 $\frac{3}{4}$	6 close	14 $\frac{1}{4}$	35 $\frac{1}{2}$	6	2	6
18	71 $\frac{1}{4}$	10 $\frac{3}{8}$	90 $\frac{5}{8}$	3-12	82	6 close	12 $\frac{7}{8}$	23 $\frac{1}{6}$	6	2 $\frac{1}{2}$	6
20	78 $\frac{1}{2}$	10 $\frac{3}{8}$	97 $\frac{7}{8}$	3-14	89 $\frac{1}{4}$	6 close	14 $\frac{1}{4}$	25	6	2 $\frac{1}{2}$	6
22	85 $\frac{3}{4}$	10 $\frac{1}{4}$	105	3-14	96 $\frac{1}{2}$	6 close	14 $\frac{1}{4}$	28 $\frac{5}{8}$	6	2 $\frac{1}{2}$	6
24	93	10 $\frac{1}{4}$	112 $\frac{1}{4}$	3-14	103 $\frac{3}{4}$	6 close	14 $\frac{1}{4}$	32 $\frac{1}{4}$	6	2 $\frac{1}{2}$	6
26	100 $\frac{1}{4}$	10 $\frac{1}{4}$	119 $\frac{1}{2}$	4-14	111	6 close	14 $\frac{1}{4}$	25	6	3	6
28	107 $\frac{1}{2}$	10 $\frac{1}{4}$	126 $\frac{3}{4}$	4-14	118 $\frac{1}{4}$	6 close	14 $\frac{1}{4}$	25	6	3	6
30	114 $\frac{3}{4}$	10 $\frac{1}{4}$	134	4-14	125 $\frac{1}{2}$	6 close	14 $\frac{1}{4}$	32 $\frac{1}{4}$	6	3	6

Two center flue outlets on No. 26 boiler are 21 $\frac{3}{4}$ in. apart; No. 28 boiler, 29 in. apart; No. 30 boiler, 21 $\frac{3}{4}$ in. apart.
Do not bush flow tappings; use reducing elbows if necessary.

Pipe Coils on Walls

Equivalent Direct Radiation per Lineal Foot of Coil

(Not Lineal Foot of Pipe)

Coils Vertical, Pipes Horizontal

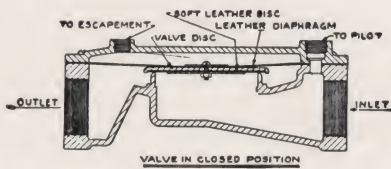
Size of pipe	215° Steam			180° Water		
	1 in.	1 $\frac{1}{4}$ in.	1 $\frac{1}{2}$ in.	1 in.	1 $\frac{1}{4}$ in.	1 $\frac{1}{2}$ in.
Single pipe.....	0.58	0.71	0.81	0.63	0.81	0.91
Two pipes high.....	1.11	1.36	1.52	1.22	1.53	1.70
Four pipes high.....	1.93	2.39	2.69	2.17	2.66	3.01
Six pipes high.....	2.48	3.07	3.47	2.81	3.44	3.88
Eight pipes high.....	2.85	3.51	3.96	3.21	3.94	4.44
Ten pipes high.....	3.07	3.96	4.45	3.59	4.44	5.00
Twelve pipes high.....	3.55	4.39	4.95	3.98	4.83	5.55

In the tables above and in the boiler rating tables, a square foot of equivalent direct steam radiation is assumed to have a heat transmission capacity of 240 B.t.u. per hour; and a square foot of equivalent direct water radiation is assumed to have a heat transmission capacity of 150 B.t.u. per hour. These constants are based upon radiators filled with 215° steam or 180° water and set in a 70° atmosphere.

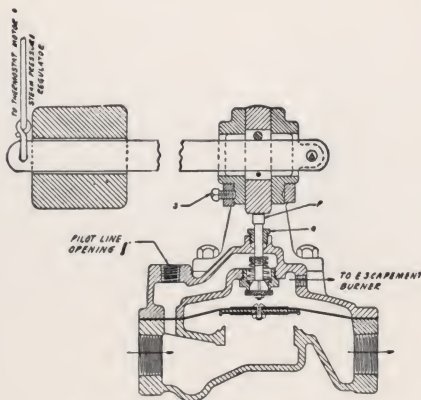
Bryant Gas Boiler Controls

The standard type of control system for Bryant Gas Boilers, when used for house heating, is the simple and troubleproof diaphragm valve system.

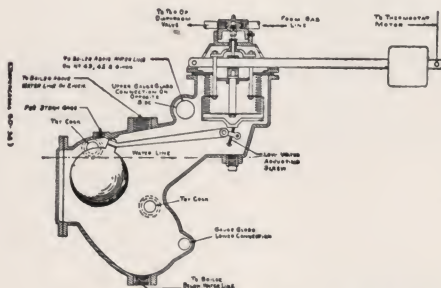
On most gas heating systems, the various controls act directly upon the main fuel supply. If they fail to function, the boiler continues to operate. In direct contrast, every single control of the Bryant system must be operating correctly before any gas can pass to burners.



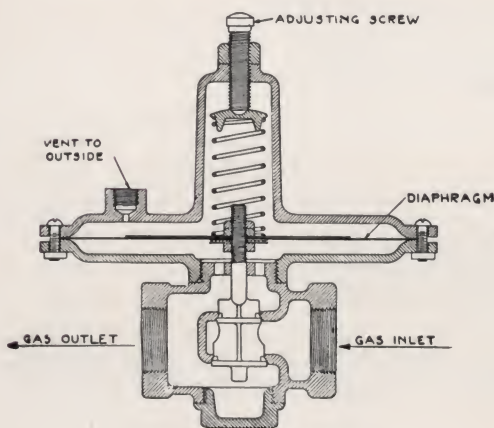
Snap Valve



Snap Action Valve



Steam Pressure and Low Water Control



Gas Pressure Regulator

Bryant Snap Valve

The Bryant Diaphragm Snap Valve is the master control. When the boiler is in operation, the pressure of the gas supply holds the soft leather diaphragm off the valve seat (see sectional view). All the controls, such as steam pressure control, water temperature regulator, low water control and pilot light control, operate this main, master valve. When any control is called upon to operate, it admits gas to the upper chamber of the snap valve, equalizing the gas pressure on both sides of the diaphragm, and the unfailing force of gravity shuts the gas off instantly and completely with a snap action. No springs are utilized.

A very slight movement of the leather disc opens the valve to full area.

Pilot and control line tapings are in top of the valve to prevent line trapping, and to facilitate installation.

The use of this diaphragm snap valve, which has helped to make Bryant Gas Heating one of the most popular of all gas-designed house heating plants, is thoroughly protected by patents.

The Bryant Snap Action Valve is used where a motor thermostat is desired.

Steam Pressure and Low Water Control

The No. 1100 Bryant Boiler Control is a combined steam pressure control and low water cut-off. Fine adjustment and watchlike precision provide sensitive and positive operation.

When the pre-determined steam pressure is developed, a metal bellows is compressed, opening a small valve which admits gas to the upper chamber of the snap valve, thus shutting off the main gas supply to the burners.

Likewise, this control is designed to operate in the same manner when the water level drops, and to turn the main gas supply into the burners when the water line returns to normal. The low water control is easily adjusted for any water level.

A lever is also provided for using the control in connection with a room temperature regulator of the motor type.

There is not a single stuffing box on the entire assembly.

Gas Pressure Regulator

The Bryant Gas Pressure Regulator is standard equipment on all models and types of Bryant Boilers.

This regulator maintains a constant pressure of 1½ oz. at the burners, at which the Bryant Boiler is designed to develop its rated capacity. This low pressure is maintained at all times, assuring an evenness of gas flow to the burners, regardless of outside fluctuations occasioned during peak demand periods.

The large diaphragm insures a sensitiveness of operation and an instantaneous response to the slightest variations in pressure.

The durable construction of the Bryant Gas Pressure Regulator contributes to the years of care-free service of Bryant equipment.

Bryant Gas Boiler Controls

Quick Action Valve

The Bryant Quick Action Gas Valve constitutes the main gas control of Type "C" boilers.

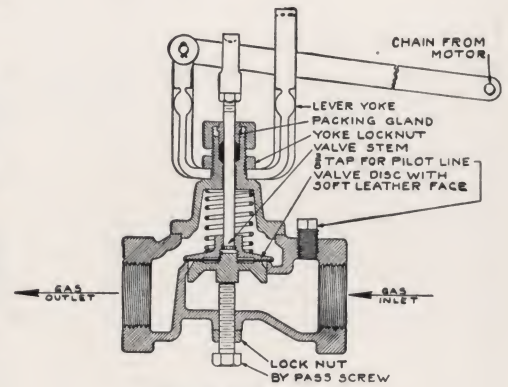
It is lever operating, actuated by room temperature regulators of the motor type.

Valve opens to full area on a very slight movement of the lever. The soft leather disc provides positive cut-off, and yet this disc is prevented from becoming cut by an exclusive Bryant patented feature. The valve is spring closing.

The lever is adjustable to any angle to the gas line and can be locked securely in position by means of a hexagon nut.

A $\frac{3}{8}$ -in. tapping is provided on the top of the inlet side of the valve for pilot line; or, if preferred, the valve can be by-passed by means of a throttling screw in the bottom.

The extreme simplicity and durability of construction of the Bryant Quick Action Valve makes it a thoroughly dependable means of gas control for use where dual control is not desired.



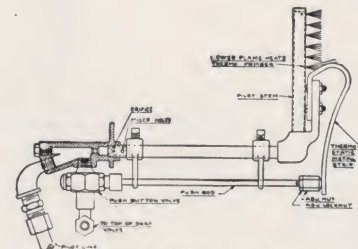
Quick Action Valve

Bryant Thermostatic Pilot

A pilot burner controlled by thermostatic element, which, when cold, opens a small valve, admitting gas to the upper chamber of the master control—the diaphragm snap valve.

On boilers where two or more pilots are provided, each works independently of the others, providing complete control of all burners.

Continued exposure to heat does not affect the pilot's adjustment. No flexible tubing or wires to require replacement. All pilot burners are easily accessible for inspection.



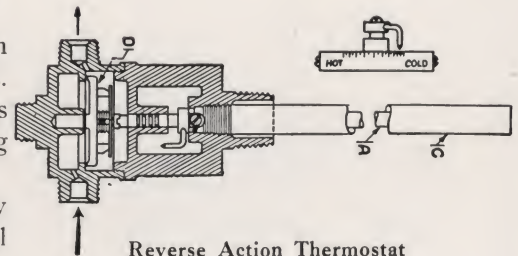
Thermostatic Pilot

Water Temperature Control for Hot Water Boilers

A Robertshaw Reverse Action Thermostat provides protection against excessive water temperatures on all Type "W" Bryant boilers.

When this control is called upon to operate, it opens a small gas valve, admitting gas to the upper chamber of the snap valve, shutting off the gas supply to the burners.

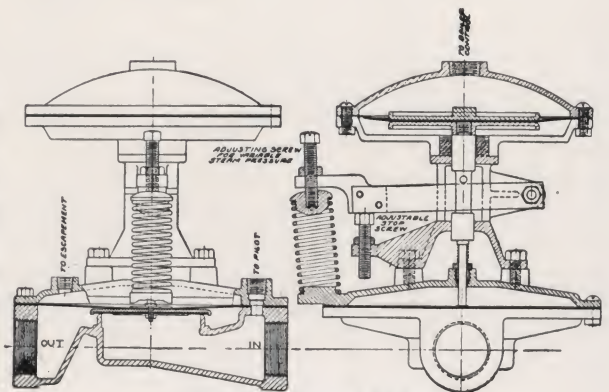
This thermostat is of rugged, all-metal construction, yet very sensitive. Designed to operate the snap valve at variations as small as 6° to 10° F. water temperature.



Reverse Action Thermostat

Bryant Throttling Control Valve

The throttling control valve embodies the same principles of operation as the diaphragm snap valve with an additional throttling control feature to throttle the gas flow to the main burners as the steam pressure builds up. The boiler steam pressure exerts a force on top of the diaphragm against the tension of a spring under the end of the lever arm. As the steam pressure increases, the valve stem is gradually moved downward against the spring tension, pushing the leather diaphragm in the snap valve toward its closed position, reducing the total open area of the gas valve and thus reducing the flow of gas to the main burners.



Throttling Control Valve

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1962 - 2011

The Bryant national organization of gas heating engineers is thoroughly experienced in all phases of automatic gas heating practice.

It is a major part of this organization's business to give you whole-hearted co-operation on problems relating to the application of automatic gas heating.

BRYANT GAS HEATING



THE BRYANT HEATER & MFG. COMPANY

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